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EXAMINER

CHEN, QING

ART UNIT PAPER NUMBER

2191

DATE MAILED: 12/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/507,024

Applicant(s)

RAYMOND ET AL.

Examiner

Qing Chen

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08 September 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-41 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-41 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 September 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>20041221</u> . | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

1. This is the initial Office action based on the application filed on September 8, 2004.
2. **Claims 1-41** are pending.

#### *Oath/Declaration*

3. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because:

It does not identify the mailing address of each inventor. A mailing address is an address at which an inventor customarily receives his or her mail and may be either a home or business address. The mailing address should include the ZIP Code designation. The mailing address may be provided in an application data sheet or a supplemental oath or declaration. See 37 CFR 1.63(c) and 37 CFR 1.76.

#### *Specification*

4. The abstract of the disclosure is objected to because it contains a typographical error: reference number for interaction design system should be changed from 10 to 12. Correction is required. See MPEP § 608.01(b).
5. The disclosure is objected to because of the following informalities:
  - The specification contains the following typographical errors:
    - A whitespace character should be added after the colon (:) in page 14, line 2.
    - The phrase "... so that they are is available ..." should presumably read "... so that they are available ..." in page 20, line 10.

- A period (.) should be added at the end of the sentence in page 37, line 22.
- The specification does not explain what the acronym IDS stands for.
- The specification does not provide a reference to the submitted appendix.

Appropriate correction is required.

6. The use of trademarks, such as JAVA, has been noted in this application. Trademarks should be capitalized wherever they appear (capitalize each letter OR accompany each trademark with an appropriate designation symbol, *e.g.*, <sup>TM</sup> or ®) and be accompanied by the generic terminology (use trademarks as adjectives modifying a descriptive noun, *e.g.*, “the JAVA programming language”).

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner, which might adversely affect their validity as trademarks.

### ***Claim Objections***

7. **Claims 3-9** are objected to because of the following informalities:
- **Claim 3** recites the limitations “the tasks model” and “the user models.” The Examiner subsequently interprets these limitations as reading “the task model” and “the user model,” respectively, for the purpose of providing them with proper explicit antecedent basis.
  - **Claims 4-9** depend on Claim 3 and, therefore, suffer the same deficiencies as Claim 3.

Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. **Claims 10-37** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

**Claims 10 and 24** recite the limitation “the user.” There is insufficient antecedent basis for this limitation in the claims. In the interest of compact prosecution, the Examiner subsequently interprets this limitation as reading “a user” for the purpose of further examination.

**Claim 10** recites the limitation “presentation elements contained in a presentation elements.” It is unclear to the Examiner how presentation elements can be contained in another presentation element. In the interest of compact prosecution, the Examiner subsequently interprets this limitation as reading “presentation elements contained in a presentation elements library” for the purpose of further examination.

- Claims 11-23** depend on Claim 10 and, therefore, suffer the same deficiencies as Claim 10.

**Claims 25-37** depend on Claim 24 and, therefore, suffer the same deficiency as Claim 24.

**Claim 23** recites the limitation “the matching of characteristics.” There is insufficient antecedent basis for this limitation in the claim. In the interest of compact prosecution, the Examiner subsequently interprets this limitation as reading “the matching of the information” for the purpose of further examination.

***Claim Rejections - 35 USC § 101***

10. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

11. **Claims 1-23 and 38-41** are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

The result of **Claims 1-23 and 38-41** is directed to the act of “matching,” which does not appear to be a tangible result so as to constitute a practical application of the idea. The act of “matching” is merely a thought or an abstract idea and does not appear to produce a tangible result even if the step of matching does occur, since the result of that match is not conveyed in the real world. The result is a match, which is neither used in a disclosed practical application nor made available for use in a disclosed practical application. It also does not appear that the

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usefulness of the match can be realized from the claimed steps to support a disclosed specific, substantial, and credible utility so as to produce a useful result.

Therefore, the claims do not meet the statutory requirement of 35 U.S.C. § 101, since the claims are not directed to a practical application of the § 101 judicial exception producing a result tied to the physical world.

***Claim Rejections - 35 USC § 103***

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. **Claims 1-4, 9-16, 21-25, and 35-41** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Eisenstein et al., “Applying Model-Based Techniques to the Development of UIs for Mobile Computers,” 2001 (hereinafter Eisenstein et al.)** in view of **Puerta et al., “Towards a General Computational Framework for Model-Based Interface Development Systems,” 1999 (hereinafter Puerta et al.)**.

As per **Claim 1**, Eisenstein et al. disclose:

- receiving a domain model, a user model, a task model, and a device model, wherein the domain model characterizes an application for which the user interface is to be used, wherein the user model characterizes users who are to interface with the user interface, wherein the task

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model characterizes tasks to be performed between the user interface and the users, and wherein the device model characterizes interaction delivery devices that are available to deliver the user interface (see Page 70, "A platform model describes the various computer systems that may run a UI. This model includes information regarding the constraints placed on the UI by the platform. The platform model contains an element for each platform that is supported, and each element contains attributes describing features and constraints."; Page 71, "A task model is a structured representation of the tasks that the user of the software may want to perform. The task model is hierarchically decomposed into subtasks, and information regarding goals, preconditions, and postconditions may be supplied." and "For many applications, it is essential to model the users themselves, especially when there are multiple users with different preferences, abilities, and privileges. It is also often appropriate to model the domain characteristics of the tasks supported by the UI. Such information often guides the selection of widgets."); and,

- matching characteristics in the task model and the device model so as to construct the user interface (see Page 74, "The designer should create mappings between platforms (or classes of platforms) and tasks (or sets of tasks). Additional mappings are then created between task elements and presentation structures that are optimized for a given set of tasks.").

However, Eisenstein et al. do not disclose:

- matching characteristics in the domain model and the user model so as to construct the user interface.

Puerta et al. disclose matching characteristics in the domain model and the user model so as to construct the user interface (see Page 173, "Each user may be involved in all tasks in a

*user-task model, or just in a subset of these tasks. The assignment of users to tasks is a mapping process.”; Page 174, “An interface model must also define what objects are involved in the completion of the tasks represented in its user-task model component. Thus it is necessary to map objects to tasks in an interface model.”).*

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Puerta et al. into the teaching of Eisenstein et al. to include matching characteristics in the domain model and the user model so as to construct the user interface. The modification would be obvious because one of ordinary skill in the art would be motivated to build and refine the interface model to produce a user interface (*see Puerta et al. – Page 171*).

As per **Claim 2**, the rejection of **Claim 1** is incorporated; and Eisenstein et al. further disclose:

- wherein the matching of characteristics comprises forming an intersection between the task model and the device model (*see Figure 5; Page 74, “The designer should create mappings between platforms (or classes of platforms) and tasks (or sets of tasks).”*).

However, Eisenstein et al. do not disclose:

- wherein the matching of characteristics comprises forming an intersection between the domain model and the user model.

Puerta et al. disclose wherein the matching of characteristics comprises forming an intersection between the domain model and the user model (*see Figure 1; Page 173, “For example, given user-task  $t$  in domain  $d$  find an appropriate presentation  $p$  and dialog  $D$  that*

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*allows user u to accomplish t. Therefore, the goal of a model-based system in such a case is to link t, d, and u with an appropriate p and D.”).*

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Puerta et al. into the teaching of Eisenstein et al. to include wherein the matching of characteristics comprises forming an intersection between the domain model and the user model. The modification would be obvious because one of ordinary skill in the art would be motivated to build and refine the interface model to produce a user interface (*see Puerta et al. – Page 171*).

As per **Claim 3**, the rejection of **Claim 1** is incorporated; and Eisenstein et al. further disclose:

- matching the interaction delivery devices to information requirements defined in the task model to identify interaction delivery devices that support the information requirements (*see Figure 5; Page 74, “The designer should create mappings between platforms (or classes of platforms) and tasks (or sets of tasks).”*); and,
- matching presentation elements to task primitives of the task model and to characteristics provided in the domain model to identify presentation elements that support the task primitives and the domain characteristics, wherein the presentation elements comprise display objects (*see Figure 5; Page 71, “It is also often appropriate to model the domain characteristics of the tasks supported by the UI. Such information often guides the selection of widgets.”*; *Page 74, “Additional mappings are then created between task elements and presentation structures that are optimized for a given set of tasks.”*).

However, Eisenstein et al. do not disclose:

- matching the interaction delivery devices to the users defined in the user model to identify interaction delivery devices that support the users.

Puerta et al. disclose matching the interaction delivery devices to the users defined in the user model to identify interaction delivery devices that support the users (*see Page 173, "Each user may be involved in all tasks in a user-task model, or just in a subset of these tasks. The assignment of users to tasks is a mapping process."*).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Puerta et al. into the teaching of Eisenstein et al. to include matching the interaction delivery devices to the users defined in the user model to identify interaction delivery devices that support the users. The modification would be obvious because one of ordinary skill in the art would be motivated to build and refine the interface model to produce a user interface (*see Puerta et al. – Page 171*).

As per **Claim 4**, the rejection of **Claim 3** is incorporated; and Eisenstein et al. further disclose:

- wherein the matching of characteristics comprises creating a presentation for each identified presentation element and a matching one of the identified interaction delivery devices (*see Figures 2 and 3*).

As per **Claim 9**, the rejection of **Claim 4** is incorporated; and Eisenstein et al. further disclose:

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- wherein the matching of characteristics comprises generating the user interface based on the presentations (*see Figures 6 and 7*).

As per **Claim 10**, Eisenstein et al. disclose:

- creating a domain model, a user model, wherein the domain model contains information characterizing a designer selected application in a designed selected domain (*see Page 71, "It is also often appropriate to model the domain characteristics of the tasks supported by the UI. Such information often guides the selection of widgets."*);

- creating a user model, wherein the user model contains information characterizing users of the user interface (*see Page 71, "For many applications, it is essential to model the users themselves, especially when there are multiple users with different preferences, abilities, and privileges."*);

- creating a task model, wherein the task model contains task primitives to be performed between a user and the user interface, and wherein the task model also contains types of information required by the task primitives (*see Page 71, "A task model is a structured representation of the tasks that the user of the software may want to perform. The task model is hierarchically decomposed into subtasks, and information regarding goals, preconditions, and postconditions may be supplied."*);

- creating a device model, wherein the device model contains information characterizing interaction delivery devices that are available to deliver the user interface (*see Page 70, "A platform model describes the various computer systems that may run a UI. This model includes information regarding the constraints placed on the UI by the platform. The*

*platform model contains an element for each platform that is supported, and each element contains attributes describing features and constraints. ”); and,*

- matching the information contained in the task model to the information contained in the device model and to presentation elements contained in a presentation elements library so as to construct the user interface, wherein the presentation elements comprise objects of the user interface that present information to the user *(see Figure 5; Page 74, “The designer should create mappings between platforms (or classes of platforms) and tasks (or sets of tasks). Additional mappings are then created between task elements and presentation structures that are optimized for a given set of tasks. ”).*

However, Eisenstein et al. do not disclose:

- matching the information contained in the domain model and the user model to the information contained in the device model and to presentation elements contained in a presentation elements library so as to construct the user interface, wherein the presentation elements comprise objects of the user interface that present information to a user.

Puerta et al. disclose matching the information contained in the domain model and the user model to the information contained in the device model and to presentation elements contained in a presentation elements library so as to construct the user interface, wherein the presentation elements comprise objects of the user interface that present information to the user *(see Page 173, “Each user may be involved in all tasks in a user-task model, or just in a subset of these tasks. The assignment of users to tasks is a mapping process.”; Page 174, “An interface model must also define what objects are involved in the completion of the tasks represented in its user-task model component. Thus it is necessary to map objects to tasks in an interface model.”).*

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Puerta et al. into the teaching of Eisenstein et al. to include matching the information contained in the domain model and the user model to the information contained in the device model and to presentation elements contained in a presentation elements library so as to construct the user interface, wherein the presentation elements comprise objects of the user interface that present information to the user. The modification would be obvious because one of ordinary skill in the art would be motivated to build and refine the interface model to produce a user interface (*see Puerta et al. – Page 171*).

As per **Claim 11**, the rejection of **Claim 10** is incorporated; and Eisenstein et al. further disclose:

- wherein the domain model, the user model, the task model, and the device model are created using a consistent notation (*see Page 70, “The MIMIC modeling language meets these criteria, and it is the language we have chosen to use for UI modeling.”*).

As per **Claim 12**, the rejection of **Claim 11** is incorporated; and Eisenstein et al. further disclose:

- wherein the notation adheres to the Resource Description Framework specification or other specific knowledge technology notations (*see Page 70, “The MIMIC modeling language meets these criteria, and it is the language we have chosen to use for UI modeling.”*).

As per **Claim 13**, the rejection of **Claim 10** is incorporated; however, Eisenstein et al. and Puerta et al. do not disclose:

- wherein the domain model, the user model, the task model, and the device model are stored in a computer readable memory.

Official Notice is taken that it is old and well known within the computing art to store a computer program or components of the computer program in a computer readable memory. In a computing system, components of a computer program are stored in a computer readable memory so a processing unit may execute the instructions stored therein. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include wherein the domain model, the user model, the task model, and the device model are stored in a computer readable memory. The modification would be obvious because one of ordinary skill in the art would be motivated to execute the components of the computer program.

As per **Claim 14**, the rejection of **Claim 10** is incorporated; and Eisenstein et al. further disclose:

- wherein the matching of the information comprises forming an intersection between the presentation elements and the information contained in the task model, the device model, and the presentation elements library (*see Figure 5; Page 74, "The designer should create mappings between platforms (or classes of platforms) and tasks (or sets of tasks). Additional mappings are then created between task elements and presentation structures that are optimized for a given set of tasks."*).

However, Eisenstein et al. do not disclose:

- wherein the matching of the information comprises forming an intersection between the presentation elements and the information contained in the domain model and the user model.

Puerta et al. disclose wherein the matching of the information comprises forming an intersection between the presentation elements and the information contained in the domain model and the user model (*see Figure 1; Page 173, "For example, given user-task  $t$  in domain  $d$  find an appropriate presentation  $p$  and dialog  $D$  that allows user  $u$  to accomplish  $t$ . Therefore, the goal of a model-based system in such a case is to link  $t$ ,  $d$ , and  $u$  with an appropriate  $p$  and  $D$ . "*).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Puerta et al. into the teaching of Eisenstein et al. to include wherein the matching of the information comprises forming an intersection between the presentation elements and the information contained in the domain model and the user model. The modification would be obvious because one of ordinary skill in the art would be motivated to build and refine the interface model to produce a user interface (*see Puerta et al. – Page 171*).

As per **Claim 15**, the rejection of **Claim 10** is incorporated; and Eisenstein et al. further disclose:

- matching the interaction delivery devices to the type of information required of the task primitives so as to identify interaction delivery devices that support the information

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requirements (see Figure 5; Page 74, "The designer should create mappings between platforms (or classes of platforms) and tasks (or sets of tasks)."); and,

- matching the presentation elements to the task primitives and to the information characterizing the designer selected application in the designer selected domain so as to identify presentation elements that support the task primitives and the domain information (see Figure 5; Page 71, "It is also often appropriate to model the domain characteristics of the tasks supported by the UI. Such information often guides the selection of widgets."; Page 74, "Additional mappings are then created between task elements and presentation structures that are optimized for a given set of tasks.").

However, Eisenstein et al. do not disclose:

- matching the interaction delivery devices to the information characterizing the users so as to identify interaction delivery devices that support the users.

Puerta et al. disclose matching the interaction delivery devices to the information characterizing the users so as to identify interaction delivery devices that support the users (see Page 173, "Each user may be involved in all tasks in a user-task model, or just in a subset of these tasks. The assignment of users to tasks is a mapping process.").

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Puerta et al. into the teaching of Eisenstein et al. to include matching the interaction delivery devices to the information characterizing the users so as to identify interaction delivery devices that support the users. The modification would be obvious because one of ordinary skill in the art would be motivated to build and refine the interface model to produce a user interface (see Puerta et al. – Page 171).

As per **Claim 16**, the rejection of **Claim 15** is incorporated; and Eisenstein et al. further disclose:

- wherein the matching of the information comprises creating a presentation for each identified presentation element that matches at least one of the identified interaction delivery devices (*see Figures 2 and 3*).

As per **Claim 21**, the rejection of **Claim 10** is incorporated; and Eisenstein et al. further disclose:

- wherein the domain model, the user model, the task model, and the device model are created using a consistent notation (*see Page 70, "The MIMIC modeling language meets these criteria, and it is the language we have chosen to use for UI modeling."*), and wherein the matching of the information comprises:

- matching the interaction delivery devices to the type of information required of the task primitives so as to identify interaction delivery devices that support the information requirements (*see Figure 5; Page 74, "The designer should create mappings between platforms (or classes of platforms) and tasks (or sets of tasks)."*); and,

- matching the presentation elements to the task primitives and to the information characterizing the designer selected application in the designer selected domain so as to identify presentation elements that support the task primitives and the domain information (*see Figure 5; Page 71, "It is also often appropriate to model the domain characteristics of the tasks supported by the UI. Such information often guides the selection of widgets."*; Page 74, "Additional

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*mappings are then created between task elements and presentation structures that are optimized for a given set of tasks."*

However, Eisenstein et al. do not disclose:

- matching the interaction delivery devices to the information characterizing the users so as to identify interaction delivery devices that support the users.

Puerta et al. disclose matching the interaction delivery devices to the information characterizing the users so as to identify interaction delivery devices that support the users (*see Page 173, "Each user may be involved in all tasks in a user-task model, or just in a subset of these tasks. The assignment of users to tasks is a mapping process."*).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Puerta et al. into the teaching of Eisenstein et al. to include matching the interaction delivery devices to the information characterizing the users so as to identify interaction delivery devices that support the users. The modification would be obvious because one of ordinary skill in the art would be motivated to build and refine the interface model to produce a user interface (*see Puerta et al. – Page 171*).

As per **Claim 22**, the rejection of **Claim 21** is incorporated; and Eisenstein et al. further disclose:

- wherein the matching of the information comprises creating presentations, and wherein each presentation comprises a matching pair of one of the presentation elements and one of the interaction delivery devices (*see Figures 2 and 3*).

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As per **Claim 23**, the rejection of **Claim 22** is incorporated; and Eisenstein et al. further disclose:

- wherein the matching of the information comprises selecting one of the presentations for each interaction to be performed between the user interface and the users (*see Figure 5*).

As per **Claim 24**, Eisenstein et al. disclose:

- wherein the domain model contains information characterizing data, concepts, and relations of an application in a domain as specified by a designer (*see Page 71, "It is also often appropriate to model the domain characteristics of the tasks supported by the UI. Such information often guides the selection of widgets."*);

- wherein the user model contains information characterizing roles and preferences of users of the user interface (*see Page 71, "For many applications, it is essential to model the users themselves, especially when there are multiple users with different preferences, abilities, and privileges."*);

- wherein the task model contains task primitives to be performed between a user and the user interface, type of information required of the task primitives, and sequences of the task primitives (*see Page 71, "A task model is a structured representation of the tasks that the user of the software may want to perform. The task model is hierarchically decomposed into subtasks, and information regarding goals, preconditions, and postconditions may be supplied."*);

- wherein the device model contains information including modality characterizing interaction delivery devices that are available to deliver the user interface (*see Page 70, "A platform model describes the various computer systems that may run a UI. This model includes*

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*information regarding the constraints placed on the UI by the platform. The platform model contains an element for each platform that is supported, and each element contains attributes describing features and constraints.”);*

- matching the interaction delivery devices in the device model to the type of information required of the task primitives so as to identify interaction delivery devices that support the information requirements (*see Figure 5; Page 74, “The designer should create mappings between platforms (or classes of platforms) and tasks (or sets of tasks).”*);

- matching presentation elements to the task primitives and to the data, concepts, and relations of the domain model so as to identify ones of the presentation elements that support the task primitives and the data, concepts, and relations of the domain model (*see Figure 5; Page 71, “It is also often appropriate to model the domain characteristics of the tasks supported by the UI. Such information often guides the selection of widgets.”; Page 74, “Additional mappings are then created between task elements and presentation structures that are optimized for a given set of tasks.”*); and,

- generating the user interface based on the identified interaction delivery device and the identified presentation elements (*see Figures 6 and 7*).

However, Eisenstein et al. do not disclose:

- storing a domain model, a user model, a task model, and a device model in a computer readable memory; and,
- matching the interaction delivery devices in the device model to the information characterizing the users so as to identify interaction delivery devices that support the users.

Official Notice is taken that it is old and well known within the computing art to store a computer program or components of the computer program in a computer readable memory. In a computing system, components of a computer program are stored in a computer readable memory so a processing unit may execute the instructions stored therein. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include storing a domain model, a user model, a task model, and a device model in a computer readable memory. The modification would be obvious because one of ordinary skill in the art would be motivated to execute the components of the computer program.

Puerta et al. disclose matching the interaction delivery devices in the device model to the information characterizing the users so as to identify interaction delivery devices that support the users (*see Page 173, "Each user may be involved in all tasks in a user-task model, or just in a subset of these tasks. The assignment of users to tasks is a mapping process."*).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Puerta et al. into the teaching of Eisenstein et al. to include matching the interaction delivery devices in the device model to the information characterizing the users so as to identify interaction delivery devices that support the users. The modification would be obvious because one of ordinary skill in the art would be motivated to build and refine the interface model to produce a user interface (*see Puerta et al. – Page 171*).

As per **Claim 25**, the rejection of **Claim 24** is incorporated; and Eisenstein et al. further disclose:

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- wherein the generating of the user interface comprises creating presentations between matching ones of the identified presentation elements and ones of the identified interaction delivery devices (*see Figures 2 and 3*).

As per **Claim 35**, the rejection of **Claim 24** is incorporated; and Eisenstein et al. further disclose:

- wherein the generating of the user interface comprises creating presentations between matching ones of the identified presentation elements and the identified interaction delivery devices (*see Figures 2 and 3*).

As per **Claim 36**, the rejection of **Claim 35** is incorporated; and Eisenstein et al. further disclose:

- wherein the generating of the user interface comprises selecting one of the presentations for each interaction to be performed between the user interface and the users (*see Figure 5*).

As per **Claim 37**, the rejection of **Claim 36** is incorporated; and Eisenstein et al. further disclose:

- wherein the generating of the user interface comprises generating the user interface based on the selected presentations (*see Figures 6 and 7*).

As per **Claim 38**, Eisenstein et al. disclose:

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- wherein the domain model characterizes an application for which the system is to be used, wherein the user model characterizes a user who is to use the system, wherein the task model characterizes tasks to be performed between the system and the user, and wherein the device model characterizes devices to support the system (*see Page 70, "A platform model describes the various computer systems that may run a UI. This model includes information regarding the constraints placed on the UI by the platform. The platform model contains an element for each platform that is supported, and each element contains attributes describing features and constraints."*; *Page 71, "A task model is a structured representation of the tasks that the user of the software may want to perform. The task model is hierarchically decomposed into subtasks, and information regarding goals, preconditions, and postconditions may be supplied."* and *"For many applications, it is essential to model the users themselves, especially when there are multiple users with different preferences, abilities, and privileges. It is also often appropriate to model the domain characteristics of the tasks supported by the UI. Such information often guides the selection of widgets."*); and,

- matching characteristics in the task model and the device model so as to construct the system (*see Page 74, "The designer should create mappings between platforms (or classes of platforms) and tasks (or sets of tasks). Additional mappings are then created between task elements and presentation structures that are optimized for a given set of tasks."*).

However, Eisenstein et al. do not disclose:

- storing a domain model, a user model, a task model, and a device model in a computer readable memory; and,

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- matching characteristics in the domain model and the user model so as to construct the system.

Official Notice is taken that it is old and well known within the computing art to store a computer program or components of the computer program in a computer readable memory. In a computing system, components of a computer program are stored in a computer readable memory so a processing unit may execute the instructions stored therein. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include storing a domain model, a user model, a task model, and a device model in a computer readable memory. The modification would be obvious because one of ordinary skill in the art would be motivated to execute the components of the computer program.

Puerta et al. disclose matching characteristics in the domain model and the user model so as to construct the system (*see Page 173, "Each user may be involved in all tasks in a user-task model, or just in a subset of these tasks. The assignment of users to tasks is a mapping process."; Page 174, "An interface model must also define what objects are involved in the completion of the tasks represented in its user-task model component. Thus it is necessary to map objects to tasks in an interface model."*).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Puerta et al. into the teaching of Eisenstein et al. to include matching characteristics in the domain model and the user model so as to construct the system. The modification would be obvious because one of ordinary skill in the art would be motivated to build and refine the interface model to produce a user interface (*see Puerta et al. – Page 171*).

As per **Claim 39**, the rejection of **Claim 38** is incorporated; and Eisenstein et al. further disclose:

- wherein the matching of characteristics comprises forming an intersection between the task model and the device model (*see Figure 5; Page 74, "The designer should create mappings between platforms (or classes of platforms) and tasks (or sets of tasks)."*).

However, Eisenstein et al. do not disclose:

- wherein the matching of characteristics comprises forming an intersection between the domain model and the user model.

Puerta et al. disclose wherein the matching of characteristics comprises forming an intersection between the domain model and the user model (*see Figure 1; Page 173, "For example, given user-task  $t$  in domain  $d$  find an appropriate presentation  $p$  and dialog  $D$  that allows user  $u$  to accomplish  $t$ . Therefore, the goal of a model-based system in such a case is to link  $t$ ,  $d$ , and  $u$  with an appropriate  $p$  and  $D$ ."*).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Puerta et al. into the teaching of Eisenstein et al. to include wherein the matching of characteristics comprises forming an intersection between the domain model and the user model. The modification would be obvious because one of ordinary skill in the art would be motivated to build and refine the interface model to produce a user interface (*see Puerta et al. – Page 171*).

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As per **Claim 40**, the rejection of **Claim 39** is incorporated; and Eisenstein et al. further disclose:

- creating the domain model, the user model, the task model, and the device model using a consistent notation (*see Page 70, "The MIMIC modeling language meets these criteria, and it is the language we have chosen to use for UI modeling."*).

As per **Claim 41**, the rejection of **Claim 40** is incorporated; and Eisenstein et al. further disclose:

- wherein the notation adheres to the Resource Description Framework specification or other specific knowledge technology notations (*see Page 70, "The MIMIC modeling language meets these criteria, and it is the language we have chosen to use for UI modeling."*).

14. **Claims 5-8, 17-20, and 26-34** are rejected under 35 U.S.C. 103(a) as being unpatentable over Eisenstein et al. in view of Puerta et al. as applied to Claims 4, 16, and 25 above, and further in view of Nelson et al. (US 6,243,713).

As per **Claim 5**, the rejection of **Claim 4** is incorporated; however, Eisenstein et al. and Puerta et al. do not disclose:

- wherein the matching of characteristics comprises scoring and sorting the presentations, and wherein the matching of characteristics comprises selecting the presentations having the best scores.

Nelson et al. disclose wherein the matching of characteristics comprises scoring and sorting the presentations, and wherein the matching of characteristics comprises selecting the presentations having the best scores (*see Column 26: 44-48, "Once all candidate documents are scored, the final scores are sorted, and the documents presented to the user, providing the best scoring documents first. A threshold may be used to select a limited number of the best scoring documents if desired."*).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Nelson et al. into the teaching of Eisenstein et al. to include wherein the matching of characteristics comprises scoring and sorting the presentations, and wherein the matching of characteristics comprises selecting the presentations having the best scores. The modification would be obvious because one of ordinary skill in the art would be motivated to enhance usability.

As per **Claim 6**, the rejection of **Claim 5** is incorporated; and Eisenstein et al. further disclose:

- wherein the matching of characteristics comprises generating the user interface based on the selected presentations (*see Figures 6 and 7*).

As per **Claim 7**, the rejection of **Claim 5** is incorporated; however, Eisenstein et al. and Puerta et al. do not disclose:

- wherein the selecting of the presentations comprises selecting the presentations having the best scores for all interactions between the users and the user interface.

Nelson et al. disclose wherein the selecting of the presentations comprises selecting the presentations having the best scores for all interactions between the users and the user interface (*see Column 26: 44-48, "A threshold may be used to select a limited number of the best scoring documents if desired."*).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Nelson et al. into the teaching of Eisenstein et al. to include wherein the selecting of the presentations comprises selecting the presentations having the best scores for all interactions between the users and the user interface. The modification would be obvious because one of ordinary skill in the art would be motivated to enhance usability.

**Claim 8** is rejected for the same reason set forth in the rejection of Claim 6.

As per **Claim 17**, the rejection of **Claim 16** is incorporated; however, Eisenstein et al. and Puerta et al. do not disclose:

- wherein the matching of the information comprises scoring and sorting the presentations, and wherein the matching of the information comprises selecting the presentations having the best scores.

Nelson et al. disclose wherein the matching of the information comprises scoring and sorting the presentations, and wherein the matching of the information comprises selecting the presentations having the best scores (*see Column 26: 44-48, "Once all candidate documents are scored, the final scores are sorted, and the documents presented to the user, providing the best*

*scoring documents first. A threshold may be used to select a limited number of the best scoring documents if desired."*

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Nelson et al. into the teaching of Eisenstein et al. to include wherein the matching of the information comprises scoring and sorting the presentations, and wherein the matching of the information comprises selecting the presentations having the best scores. The modification would be obvious because one of ordinary skill in the art would be motivated to enhance usability.

As per **Claim 18**, the rejection of **Claim 17** is incorporated; and Eisenstein et al. further disclose:

- wherein the matching of the information comprises generating the user interface based on the selected presentations (*see Figures 6 and 7*).

As per **Claim 19**, the rejection of **Claim 17** is incorporated; however, Eisenstein et al. and Puerta et al. do not disclose:

- wherein the selecting of the presentations comprises selecting the presentations having the best scores for all interactions to be performed by the user interface.

Nelson et al. disclose wherein the selecting of the presentations comprises selecting the presentations having the best scores for all interactions to be performed by the user interface (*see Column 26: 44-48, "A threshold may be used to select a limited number of the best scoring documents if desired."*).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Nelson et al. into the teaching of Eisenstein et al. to include wherein the selecting of the presentations comprises selecting the presentations having the best scores for all interactions to be performed by the user interface. The modification would be obvious because one of ordinary skill in the art would be motivated to enhance usability.

**Claim 20** is rejected for the same reason set forth in the rejection of Claim 18.

As per **Claim 26**, the rejection of **Claim 25** is incorporated; however, Eisenstein et al. and Puerta et al. do not disclose:

- wherein the matching of the information comprises scoring and sorting the presentations, and wherein the matching of the information comprises selecting the presentations having the best scores.

Nelson et al. disclose wherein the matching of the information comprises scoring and sorting the presentations, and wherein the matching of the information comprises selecting the presentations having the best scores (*see Column 26: 44-48, "Once all candidate documents are scored, the final scores are sorted, and the documents presented to the user, providing the best scoring documents first. A threshold may be used to select a limited number of the best scoring documents if desired."*).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Nelson et al. into the teaching of Eisenstein et

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al. to include wherein the matching of the information comprises scoring and sorting the presentations, and wherein the matching of the information comprises selecting the presentations having the best scores. The modification would be obvious because one of ordinary skill in the art would be motivated to enhance usability.

As per **Claim 27**, the rejection of **Claim 26** is incorporated; and Eisenstein et al. further disclose:

- wherein the generating of the user interface comprises generating the user interface based on the selected presentations (*see Figures 6 and 7*).

As per **Claim 28**, the rejection of **Claim 26** is incorporated; however, Eisenstein et al. and Puerta et al. do not disclose:

- wherein the selecting of the presentations comprises selecting the presentations having the best scores for all interactions to be performed by the user interface.

Nelson et al. disclose wherein the selecting of the presentations comprises selecting the presentations having the best scores for all interactions to be performed by the user interface (*see Column 26: 44-48, "A threshold may be used to select a limited number of the best scoring documents if desired."*).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Nelson et al. into the teaching of Eisenstein et al. to include wherein the selecting of the presentations comprises selecting the presentations having the best scores for all interactions to be performed by the user interface. The modification

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would be obvious because one of ordinary skill in the art would be motivated to enhance usability.

**Claim 29** is rejected for the same reason set forth in the rejection of Claim 27.

As per **Claim 30**, the rejection of **Claim 29** is incorporated; and Eisenstein et al. further disclose:

- creating the domain model, the user model, the task model, and the device model using a consistent notation (*see Page 70, "The MIMIC modeling language meets these criteria, and it is the language we have chosen to use for UI modeling."*).

As per **Claim 31**, the rejection of **Claim 30** is incorporated; and Eisenstein et al. further disclose:

- wherein the notation adheres to the Resource Description Framework specification or other specific knowledge technology notations (*see Page 70, "The MIMIC modeling language meets these criteria, and it is the language we have chosen to use for UI modeling."*).

As per **Claim 32**, the rejection of **Claim 30** is incorporated; and Eisenstein et al. further disclose:

- wherein the generating of the user interface comprises creating presentations between matching ones of the identified presentation elements and the identified interaction delivery devices (*see Figures 2 and 3*).

As per **Claim 33**, the rejection of **Claim 32** is incorporated; and Eisenstein et al. further disclose:

- wherein the generating of the user interface comprises selecting one of the presentations for each interaction to be performed between the user interface and the users (*see Figure 5*).

**Claim 34** is rejected for the same reason set forth in the rejection of Claim 27.

### ***Conclusion***

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

A. Love et al. (US 4,870,561) disclose an interactive graphical tool for designing user interfaces on a computer workstation.

B. Hiura et al. (US 5,754,173) disclose a method and apparatus for separating the design and development of user interface functions from the design and development of core logic functions in a data processing system.

C. Lymer et al. (US 6,230,117) disclose an automated system for generating an interface between computer programs in different programming languages and operating in different environments.

D. **Bushey et al.** (US 6,405,159) disclose a method for categorizing, describing, and modeling types of system users where information from the models can be used in designing a user interface.

E. **Norton et al.** (US 6,510,411) disclose a task oriented dialog model, a development tool for creating an output file based on the task oriented dialog model and a Dialog Manager for carrying out the dialog in accordance with the output file from the development tool.

F. **Russell** (US 6,622,136) discloses a system, method and program product that allows any person, regardless of their level of domain model creation expertise to create a domain model from a given domain specification.

G. **Ott** (US 6,760,902) discloses an object-oriented computer software technology and associated program development tools that support software application program developers and end users by generating a user interface for the application program, pursuant to the developer's or end user's specifications.

H. **Reddy et al.** (US 6,971,086) disclose development of user interfaces for a computer system administration program.

I. **Carroll, Jr.** (US 6,990,654) discloses a system and a method for utilizing an interface library to create application interfaces.

J. **Taylor** (US 7,017,145) discloses a method, system, program, and data structures for generating a user interface.

K. **Hudson et al.** (US 7,024,631) disclose a system and method for enabling graphical program polymorphism.

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L. Eisenstein et al. (US 2003/0097486) disclose methods that allow application designers to automatically generate interfaces between collaborative agents and interactive applications.

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Qing Chen whose telephone number is 571-270-1071. The Examiner can normally be reached on Monday through Thursday from 7:30 AM to 4:00 PM. The Examiner can also be reached on alternate Fridays.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Wei Zhen, can be reached on 571-272-3708. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the TC 2100 Group receptionist whose telephone number is 571-272-2100.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

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system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

QC / qc  
November 20, 2006

*Mary Steelman*  
*Primary Examiner*  
*11.27.2006*